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EXAMINER	
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ART UNIT	PAPER NUMBER
2445	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/699,359	MOHAN ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER BIAGINI	2445	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2012*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-20,24 and 25* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20, 24, 25* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This communication is in response to the request for reconsideration filed April 9, 2012.

Response to Arguments

Applicant's arguments with respect to the rejections of claims 8-15 under 35 USC 112, second paragraph have been fully considered but are not persuasive.

Applicant argues that the language of the claims does not invoke 35 USC 112, sixth paragraph because claim 8 fails to recite "means for" or "step for" language. However, the mere fact that an element does not use the phrase "means for" or "step for" does not preclude that element from invoking 35 USC 112, sixth paragraph. In this case, the "processing unit arranged to…" of claim 8 is considered to be equivalent to a "means for" performing the various functions, because "processing unit" is a nonce phrase that does not convey structure in support of the functions.

Applicant further argues that the *Supplementary Examination Guidelines for Determining Compliance with 35 USC 112 and for Treatment of Related Issues in Patent Applications* provide that 112, sixth paragraph does not apply where the term at issue is the "name for the structure that performs the function." However, the term "processing unit" is not known in the art as the name of a structure. As evidenced by Applicant's own specification, established names for element 702 in Fig. 7 include "processor" and "central processing unit."

Applicant still further argues that the term “processor” has achieved recognition as a noun denoting structure, the "processor" in claim 8 is not a component of the “processing unit.” As explained above, the phrase “processing unit” does not connote structure.

Finally, Applicant points to CPU 702 as providing the corresponding structure in the specification, but a mere general-purpose processor is insufficient for this purpose. Rather, if the element is to be linked to a structure including a general-purpose processor, that structure must include a specific algorithm in connection with that processor.

The Examiner recommends amending claim 8 by inserting the phrase "central" before the phrase "processing unit."

Applicant’s arguments with respect to the rejections under 35 USC 103 have been fully considered but are not persuasive.

Applicant argues in substance that “neither Rhea, Prinkey, nor Dutta discloses or renders obvious a node to propagate a search expression based on an incentive-based criteria, which includes one or more of a connection bandwidth and reliability.” Applicant then turns to Fedyk, and argues that "Fedyk does not, however, disclose or render obvious selecting a node to propagate a search expression based on incentive-based criteria that include a connection bandwidth." In response, the Examiner submits that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Rhea shows evaluating nodes based on incentive-based criteria to select one or more nodes to propagate the search expression (see section C, first

paragraph, on p. 1250, describing that the evaluation is based on both filter matches and network latency). Rhea (in view of Prinkey or Dutta, as needed, in the various rejections) does not explicitly show the incentive-based criteria comprising one or more of a connection bandwidth and a reliability. Fedyk shows evaluating nodes based on incentive-based criteria comprising a connection bandwidth to select one or more nodes to propagate a message (comprising using link bandwidths to select a path to propagate a data message, the path being made up of nodes: see Fig. 3; col. 3, lines 48-59; col. 4, line 61 to col. 5, line 13; and col. 6, lines 4-18). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea in view of Prinkey and Dutta with the bandwidth criteria taught by Fedyk in order to ensure that the search expression is reliably transmitted (see Fedyk, col. 5, lines 5-7).

The remainder of Applicant's arguments rely on arguments already addressed above. Accordingly, the Examiner disagrees for at least the reasons given above.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 8-15 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8, the claim element "processing unit arranged to…" is a limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to clearly link or associate the disclosed structure, material, or acts to the claimed function such that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function. Applicant points to CPU 702 as providing the corresponding structure in the specification, but a mere general-purpose processor is insufficient for this purpose. Rather, if the element is to be linked to a structure including a general-purpose processor, that structure must include a *specific algorithm* in connection with that processor.

Applicant may:

(a) Amend the claim so that the claim limitation will no longer be interpreted as a limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it clearly links or associates the corresponding structure, material, or acts to the claimed function without introducing any new matter (35 U.S.C. 132(a)); or

(c) State on the record where the corresponding structure, material, or acts are set forth in the written description of the specification and linked or associated to the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claims 9-15 are rejected for at least incorporating the deficiencies of claim 8.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhea ("Probabalistic location and routing") in view of Prinkey ("An Efficient Scheme for Query Processing on Peer-to-Peer Networks"), and further in view of Dutta (US Pub. No. 2003/0050980) and Fedyk (US Patent No. 6,560,654).

Regarding claim 1, note that the preamble has been given patentable weight as it is relied upon by the body of the claim.

Rhea shows a processor-implemented method for searching for a data object in a plurality of nodes forming a peer-to-peer network (see section II, first paragraph, p. 1249), the method comprising:

- forming Bloom-Filters at the nodes as a function of data available via the nodes (see section B, p. 1249);
- communicating Bloom-filter information between peer-to-peer coupled nodes of the peer- to-peer network (see section D, p. 1250) that have formed connections using incentive-based criteria to control whether one node connects to another node (see section II, first paragraph, p. 1249 and paragraph spanning pages 1251-1252);

- forming a search expression for locating the data object (see section C, first paragraph, p. 1250);
- for a given node of the plurality of nodes, evaluating other nodes of the plurality of nodes that connected to the given node based on the Bloom-filters and the incentive- based criteria to select one or more of the other nodes to propagate the search expression (see section C, first paragraph, on p. 1250, describing that the evaluation is based on both filter matches and network latency);
- propagating the search expression to said selected one or more of the other nodes (see section C, first paragraph, p. 1250).

Rhea does not explicitly show communicating the Bloom filters themselves (rather, Rhea only explicitly describes sending diff-compressed updates).

Prinkey shows communicating Bloom filters to update other nodes (e.g., bit masks representing the hashed index of a node: see first three paragraphs under "Content-based Query Routing on p. 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea to communicate the Bloom filters to other nodes as taught by Prinkey in order to provide greater reliability, by ensuring that a node's local index remains valid even if it occasionally misses an update message.

Rhea in view of Prinkey does not explicitly show outputting a result of the search expression from nodes that satisfy the search expression.

Dutta shows outputting a result of a search expression from nodes that satisfy the search expression (see [0054]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea in view of Prinkey with the outputting taught by Dutta in order to inform a user of the results.

Rhea in view of Prinkey and Dutta does not explicitly show the incentive-based criteria comprising one or more of a connection bandwidth and a reliability.

Fedyk shows evaluating nodes based on incentive-based criteria comprising a connection bandwidth to select one or more nodes to propagate a message (comprising using link bandwidths to select a path to propagate a data message, the path being made up of nodes: see Fig. 3; col. 3, lines 48-59; col. 4, line 61 to col. 5, line 13; and col. 6, lines 4-18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea in view of Prinkey and Dutta with the bandwidth criteria taught by Fedyk in order to ensure that the search expression is reliably transmitted (see Fedyk, col. 5, lines 5-7).

Regarding claim 2, Rhea in view of Prinkey, Dutta, and Fedyk shows the limitations of claim 1 as applied above, and further shows wherein forming respective Bloom filters at the nodes includes combining Remote Bloom-filters (RBFs) received from peer- to-peer coupled nodes of the respective nodes (see Rhea, section II-B, p. 1249; see also Prinkey, third paragraph under "Content-based Query Routing" on p. 7, as combined above).

Regarding claim 3, Rhea in view of Prinkey, Dutta, and Fedyk shows the limitations of claim 1 as applied above, and further shows wherein selecting the nodes includes forming a

query Bloom-filter based on the search expression and comparing the query Bloom-filter to the respective Bloom-filters (see Rhea, section C, first paragraph, p. 1250, as well as section A, first paragraph, p. 1249, describing that the query is matched by hashing the element to be checked, which amounts to a Bloom filter for the set containing only that element).

Regarding claim 6, Rhea in view of Prinkey, Dutta, and Fedyk shows the limitations of claim 1 as applied above, and further shows *storing* local Bloom filters (see section D on p. 1250, describing that servers have their "own filter"), but does not explicitly show forming the respective Bloom filters at the nodes includes *forming* the respective Bloom filters as a function of a local Bloom-filter based on data locally accessible by the respective nodes.

Prinkey forming respective Bloom filters as a function of a local Bloom-filter based on data locally accessible by the respective nodes (see Prinkey, third paragraph under "Content-based Query Routing" on p. 7).

It would have been obvious to further modify the system of Rhea in view of Prinkey, Dutta, and Fedyk with the forming of Bloom filters as a function of locally accessible data as taught by Prinkey in order to ensure nodes consider their own content when making routing decisions.

Regarding claim 7, Rhea in view of Prinkey, Dutta, and Fedyk shows the limitations of claim 1 as applied above, but does not explicitly show wherein the peer-to-peer network comprises a Gnutella network.

Dutta shows a peer-to-peer network comprising a Gnutella network (see [0035]).

It would have been obvious to one of ordinary skill in the art to further modify the system of Rhea in view of Prinkey, Dutta, and Fedyk with the Gnutella network taught by Dutta in order to improve compatibility with existing Gnutella clients, thereby speeding adoption of the system.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhea in view of Prinkey, Dutta (US Pub. No. 2003/0050980), and Fedyk (US Patent No. 6,560,654) as applied to claim 3 above, and further in view of Lee (US Pub. No. 2002/0120814).

Regarding claim 4, the combination of Rhea in view of Prinkey, Dutta, and Fedyk shows the limitations of claim 3 as applied above, and further shows wherein comparing the query Bloom-filter to the respective Bloom-filters includes forming a ranking associated with respective Bloom-filters based on the matching of bits with the respective Bloom-filter (the ranking comprising choosing matching nodes over non-matching nodes for forwarding the query: see Rhea, section C, first paragraph, p. 1250, as well as section A, first paragraph, p. 1249).

The combination does not explicitly show that the ranking is associated with a sum of bits of the query Bloom-filter.

Lee shows ranking matches based on a sum of bits of a matching filter (e.g., a bit mask: see [0029], describing selecting entries based on which has the most consecutive bit matches).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea in view of Prinkey, Dutta, and Fedyk with the sum-based ranking taught by Lee in order to make use of partial matches between the filters.

Regarding claim 5, the combination of Rhea in view of Prinkey, Dutta, and Fedyk shows the limitations of claim 3 as applied above, and further shows wherein comparing the query Bloom-filter to the Bloom-filters includes forming a ranking associated with respective Bloom-filters based on the matching of bits with the respective Bloom-filter (the ranking comprising choosing matching nodes over non-matching nodes for forwarding the query: see Rhea, section C, first paragraph, p. 1250, as well as section A, first paragraph, p. 1249).

The combination does not explicitly show that the ranking is associated with a count of bits of the query Bloom-filter.

Lee shows ranking matches based on a sum of bits of a matching filter (e.g., a bit mask: see [0029], describing selecting entries based on which has the most consecutive bit matches).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea in view of Prinkey, Dutta, and Fedyk with the sum-based ranking taught by Lee in order to make use of partial matches between the filters.

Claims 8-10 and 24 are rejected under under 35 U.S.C. 103(a) as being unpatentable over Rhea in view of Fedyk (US Patent No. 6,560,654).

Regarding claim 8, Rhea shows a system comprising:

- a plurality of data processors coupled via a peer-to-peer network arrangement (see section II, first paragraph, on p. 1249), each data processor including;
- a network interface arranged to provide one or more respective connections with one or more associated data processor of the peer-to-peer network arrangement, the connections formed using an incentive-based criteria (comprising the necessary component which connects to neighbors based on network latency: see section II, first paragraph, on p. 1249 and paragraph spanning pages 1251-1252);
- a memory for storing one or more respective remote Bloom filters representing data accessible via the associated connections (see section B, first pargraph, on p. 1249); and
- a processing unit arranged to:
    - form a query Bloom-filter based on a data query (see section C, first paragraph, p. 1250, as well as section A, first paragraph, p. 1249, describing that the query is matched by hashing the element to be checked, which amounts to a Bloom filter for the set containing only that element);
    - for a given node of the plurality of nodes, evaluate other nodes of the plurality of nodes that connected to the given node based on the Bloom-filters and the incentive-based criteria to select one or more of the other nodes to propagate a search expression (see section C, first paragraph, on p. 1250, describing that the evaluation is based on both filter matches and network latency);

- select a subset of the connections as a function of the query Bloom-filter and the respective remote Bloom-filters associated with the connections (see section C, first paragraph, p. 1250); and
- send the data query to the subset of the connections (the subset consisting of the neighbor with lowest latency: see section C, first paragraph, p. 1250).

Rhea does not explicitly show the incentive-based criteria comprising one or more of a connection bandwidth and a reliability.

Fedyk shows evaluating nodes based on incentive-based criteria comprising a connection bandwidth to select one or more nodes to propagate a message (comprising using link bandwidths to select a path to propagate a data message, the path being made up of nodes: see Fig. 3; col. 3, lines 48-59; col. 4, line 61 to col. 5, line 13; and col. 6, lines 4-18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea with the bandwidth criteria taught by Fedyk in order to ensure that the search expression is reliably transmitted (see Fedyk, col. 5, lines 5-7).

Regarding claim 9, Rhea in view of Fedyk shows the limitations of claim 8 as applied above, and further shows wherein at least one data processor of the plurality of data processors further includes a local data storage adapted for storing data objects (e.g., documents in the form of "replicas"; note that "servers publish the fact that they are *storing* a replica [emphasis added]": see Rhea, section II. B. on p. 1249 and middle of left column of p. 1252).

Regarding claim 10, Rhea in view of Fedyk shows the limitations of claim 9 as applied above, and further shows wherein the memory of the at least one data processor is configured for storing a local Bloom-filter representing data accessible via the local data storage (see Rhea, section D on p. 1250, describing that servers have their "own filter").

Regarding claim 24, Rhea shows a system comprising:

- a network interface to connect to one or more nodes of a peer-to-peer network (see section II, first paragraph, on p. 1249) based on an incentive-based criteria, the nodes storing remote Bloom-filters associated with respective peer-to-peer data connections (comprising the necessary component which connects to neighbors based on network latency: see section II, first paragraph, on p. 1249 and paragraph spanning pages 1251-1252); and the Bloom filters indicating data accessible via the respective peer-to-peer data connections (see section B, first pargraph, on p. 1249); and
- at least one central processing unit adapted to:
    - form a query for locating one or more data objects stored on the network nodes (see section C, first paragraph, p. 1250, as well as section A, first paragraph, p. 1249);
    - for a given node of the plurality of nodes, evaluate other nodes of the plurality of nodes that connected to the given node based on the Bloom-filters and the incentive-based criteria to select one or more of the other nodes to propagate the search expression (see section C, first paragraph,

on p. 1250, describing that the evaluation is based on both filter matches and network latency); and

- cause the search expression to be propagated to the selected nodes (see section C, first paragraph, p. 1250).

Rhea does not explicitly show the incentive-based criteria comprising one or more of a connection bandwidth and a reliability.

Fedyk shows evaluating nodes based on incentive-based criteria comprising a connection bandwidth to select one or more nodes to propagate a message (comprising using link bandwidths to select a path to propagate a data message, the path being made up of nodes: see Fig. 3; col. 3, lines 48-59; col. 4, line 61 to col. 5, line 13; and col. 6, lines 4-18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea with the bandwidth criteria taught by Fedyk in order to ensure that the search expression is reliably transmitted (see Fedyk, col. 5, lines 5-7).

Claims 11-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhea in view of Fedyk (US Patent No. 6,560,654), and further in view of Prinkey.

Regarding claim 11, Rhea in view of Fedyk shows the limitations of claim 8 as applied above, but does not explicitly show wherein the processing units of the data processors are further arranged to publish a Bloom-filter to a selected connection of the one or more connections, the Bloom-filter representing data accessible via the respective data processors. (Rather, Rhea only explicitly describes sending diff-compressed updates.)

Prinkey shows publishing a Bloom-filter to a selected connection of one or more connections, the Bloom-filter representing data accessible via a respective data processor (e.g., a bit mask representing the hashed index of a node logically OR'd with the bitmasks of its hosted nodes: see first three paragraphs under "Content-based Query Routing on p. 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea in view of Fedyk to communicate the Bloom filters to other nodes as taught by Prinkey in order to provide greater reliability, by ensuring that a node's local index remains valid even if it occasionally misses an update message.

Regarding claim 12, the combination of Rhea, Fedyk, and Prinkey shows the limitations of claim 11 as applied above, and further shows wherein the Bloom filter is formed as a logical OR of the remote Bloom filters of the respective data processors except for the remote Bloom filter associated with the selected connection (see Prinkey, as combined above, third paragraph under "Content-based Query Routing" on p. 7, describing that only bitmasks for hosted nodes are OR'd together; that is, the bitmask for a node's host is not included).

Regarding claim 13, the combination of Rhea, Fedyk, and Prinkey shows the limitations of claim 11 as applied above, and further shows wherein at least one data processor of the plurality of data processors further includes a local data storage adapted for storing data, and the memory of the at least one data processor is configured for storing a local Bloom-filter representing data accessible via the respective local storage (see Rhea, section D on p. 1250,

describing that servers have their "own filter"; and Prinkey, third paragraph under "Content-based Query Routing" on p. 7, as combined above).

Regarding claim 14, the combination of Rhea, Fedyk, and Prinkey shows the limitations of claim 13 as applied above, and further shows wherein the Bloom filter is formed as a logical OR of: the local Bloom-filter; and the remote Bloom filters of the respective data processor except for the remote Bloom filter associated with the selected connection (see Prinkey, as combined above, third paragraph under "Content-based Query Routing" on p. 7, describing that only bitmasks for hosted nodes are OR'd together; that is, the bitmask for a node's host is not included).

Regarding claim 16, Rhea shows a computer-readable non-transitory storage medium having instructions stored thereon which are executable on a processor for performing steps comprising:

- forming one or more respective peer-to-peer connections with one or more network peers of the processor using an incentive-based criteria (see section II, first paragraph, p. 1249 and paragraph spanning pages 1251-1252);
- receiving respective remote Bloom-filter information representing data accessible by associated peer-to-peer connections (see section D, p. 1250); forming a query Bloom filter based on a data query (see section C, first paragraph, p. 1250, as well as section A, first paragraph, p. 1249, describing that the query is matched by

hashing the element to be checked, which amounts to a Bloom filter for the set containing only that element);

- for a given node, evaluating other nodes connected to the given node to select a node to propagate a search expression associated with the query based on incentive-based criteria and one or more respective remote Bloom filters (see section C, first paragraph, on p. 1250, describing that the evaluation is based on both filter matches and network latency);
- selecting a subset of the peer-to-peer connections as a function of the query Bloom-filter and the respective remote Bloom filters associated with the peer-to-peer connections connections (the subset consisting of the neighbor with lowest latency: see section C, first paragraph, p. 1250); and
- sending the data query to the subset of the connections (see section C, first paragraph, p. 1250).

Rhea does not explicitly show selecting nodes (plural) and receiving the Bloom filters themselves (rather, Rhea only explicitly describes sending diff-compressed updates).

Prinkey shows selecting nodes to propagate a search expression (see paragraph spanning pp. 7-8) and communicating Bloom filters to update other nodes (e.g., bit masks representing the hashed index of a node: see first three paragraphs under "Content-based Query Routing on p. 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea to communicate the Bloom filters to other nodes as taught by Prinkey in order to provide greater reliability, by ensuring that a node's local index remains valid even if it occasionally misses an update message.

Rhea in view of Prinkey does not explicitly show the incentive-based criteria comprising one or more of a connection bandwidth and a reliability.

Fedyk shows evaluating nodes based on incentive-based criteria comprising a connection bandwidth to select one or more nodes to propagate a message (comprising using link bandwidths to select a path to propagate a data message, the path being made up of nodes: see Fig. 3; col. 3, lines 48-59; col. 4, line 61 to col. 5, line 13; and col. 6, lines 4-18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Rhea in view of Prinkey with the bandwidth criteria taught by Fedyk in order to ensure that the search expression is reliably transmitted (see Fedyk, col. 5, lines 5-7).

Regarding claim 17, the combination of Rhea, Fedyk, and Prinkey shows the limitations of claim 16 as applied above, and further shows wherein the steps further include forming a local Bloom-filter based on data accessible via a local data storage of the processor (see Rhea, section D on p. 1250, describing that servers have their "own filter"; and Prinkey, third paragraph under "Content-based Query Routing" on p. 7, as combined above).

Regarding claim 18, the combination of Rhea and Prinkey shows the limitations of claim 16 as applied above, and further shows wherein the steps further include sending a Bloom-filter to a selected peer-to-peer connection of the one or more peer-to-peer connections indicating data accessible via the processor (see Prinkey, as combined above, first three paragraphs under "Content-based Query Routing" on p. 7).

Regarding claim 19, the combination of Rhea, Fedyk, and Prinkey shows the limitations of claim 18 as applied above, and further shows wherein the Bloom filter is formed as a logical OR of the remote Bloom filters of the processor except for the remote Bloom filter associated with the selected peer-to-peer connection (see Prinkey, as combined above, third paragraph under "Content-based Query Routing" on p. 7, describing that only bitmasks for hosted nodes are OR'd together; that is, the bitmask for a node's host is not included).

Claims 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhea in view of Fedyk (US Patent No. 6,560,654), and further in view of Dutta (US Pub. No. 2003/0050980).

Regarding claim 15, Rhea in view of Fedyk shows the limitations of claim 8 as applied above, but does not explicitly show wherein the peer-to-peer network arrangement includes a Gnutella network arrangement.

Dutta shows a peer-to-peer network including a Gnutella network arrangement (see [0035]).

It would have been obvious to one of ordinary skill in the art to modify the system of Rhea with the Gnutella network taught by Dutta in order to improve compatibility with existing Gnutella clients, thereby speeding adoption of the system.

Regarding claim 25, Rhea in view of Fedyk shows the limitations of claim 24 as applied above, but does not explicitly show wherein the peer-to-peer data connections utilize a Gnutella protocol.

Dutta shows peer-to-peer data connections utilizing a Gnutella protocol (see [0035]).

It would have been obvious to one of ordinary skill in the art to modify the system of Rhea with the Gnutella network taught by Dutta in order to improve compatibility with existing Gnutella clients, thereby speeding adoption of the system.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rhea in view of Prinkey and Fedyk (US Patent No. 6,560,654) as applied to claim 16 above, and further in view of Dutta (US Pub. No. 2003/0050980).

Regarding claim 20, Rhea in view of Prinkey and Fedyk shows the limitations of claim 16 as applied above, but does not explicitly show wherein the peer-to-peer connections utilize a Gnutella protocol.

Dutta shows peer-to-peer data connections utilizing a Gnutella protocol (see [0035]).

It would have been obvious to one of ordinary skill in the art to modify the system of Rhea in view of Prinkey and Fedyk with the Gnutella network taught by Dutta in order to improve compatibility with existing Gnutella clients, thereby speeding adoption of the system.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER BIAGINI whose telephone number is (571)272-9743. The examiner can normally be reached on weekdays from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2093. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher D. Biagini/
Primary Examiner, Art Unit 2445